

What Is Claimed Is:

1. A liquid cooler comprising:

a hollow tubing having an outer wall and a hollow circular inner portion, said outer wall having a  
5 circular inner wall portion; and

a first structure contained within said hollow tubing, said first structure functioning to limit the temperature rise on said outer wall by distorting the laminar flow of a fluid flowing along a center portion  
10 of said hollow circular inner portion, said center portion defined by a reference line located equidistant from said circular inner wall portion of said outer wall.

2. The liquid cooler of claim 1, wherein said  
15 first structure comprises a baffle wire, said baffle wire having a straight wire region interposed between each two adjacent of at least two kink regions, each of said at least two kink regions having a lobe region abutting said circular inner wall portion, wherein said  
20 lobe regions serve to locate said straight wire region along said center portion.

3. The liquid cooler of claim 2, wherein the length of each of said straight wire regions is equal.

4. The liquid cooler of claim 2, wherein at  
25 least two of said at least two kink regions are used to locate said straight wire region within said center portion.

5. The liquid cooler of claim 4, wherein at least one of said at least two kink regions is not co-

planar with respect to another of said at least two kink regions.

6. The liquid cooler of claim 1, wherein said first structure is an elongated ridge member secured to  
5 said circular inner wall portion of said hollow tubing.

7. The cooling system of claim 6, wherein said elongated ridge member comprises an aluminum alloy elongated ridge member.

8. A cooling system comprising:  
10 a first component selected from the group consisting of a vehicle component and a system component;

a liquid cooler coupled to said first component, said liquid cooler comprising a hollow tubing and a  
15 first structure, wherein said first structure is contained within a wall of said hollow tubing and functions to limit the temperature rise of along said wall by distorting the laminar flow of a liquid flowing through a center portion of said hollow circular inner  
20 portion, said center portion defined by a reference line located equidistant within a circular inner wall portion of said wall.

9. The cooling system of claim 8, wherein said first structure comprises a baffle wire, said baffle  
25 wire having a straight wire region interposed between each two adjacent of at least two kink regions, each of said at least two kink regions having a lobe region abutting said circular inner wall portion, wherein said lobe regions serve to locate said straight wire region  
30 along said center portion.

10. The cooling system of claim 8, wherein said first structure is an elongated ridge member having a pair of end regions and a middle portion, wherein said pair of end regions are secured at a first location on  
5 said circular inner wall portion and wherein said middle portion extends to said center portion.

11. The cooling system of claim 10, wherein said liquid cooler has a thermal interface portion, said thermal interface portion being coupled to said outer  
10 wall at a position nearest to said first location and being coupled to said first component.

12. The cooling system of claim 11, wherein a layer of a first substance is placed between said thermal interface plate and said first component, said  
15 first substance capable of enhancing the heat transfer capabilities between said first component and said liquid cooler, wherein said first substance is selected from the group consisting of a thermal grease, a thermal adhesive, and a film interposer.

20 13. The cooling system of claim 8, wherein said vehicle component is an electronic control module.

14. The cooling system of claim 8, wherein said liquid is selected from the group consisting of diesel fuel, gasoline, water-mix engine coolant, and motor  
25 oil.

15. A method for improving the cooling capabilities of a liquid cooler coupled to a vehicle or system component, the method comprising the step of:

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decreasing the temperature rise along an outer surface of a hollow tubing resulting from the laminar flow of a liquid through said hollow tubing.

16. The method of claim 15, wherein the step of  
5 decreasing the temperature rise along an outer surface of a hollow tubing resulting from the laminar flow of a liquid through said hollow tubing comprises the step of distorting the laminar flow of a liquid flowing through a center portion of a hollow tubing.

10 17. The method of claim 16, wherein the step of  
distorting the laminar flow of a liquid flowing through a center portion of a hollow tubing comprises the step of introducing a first structure within a hollow tubing of the liquid cooler, said first structure used to  
15 distort the laminar flow of a liquid flowing through a center portion of said hollow tubing.

18. The method of claim 16, wherein the step of  
distorting the laminar flow of a liquid flowing through a center portion of a hollow tubing comprises the step of introducing a first structure within said hollow tubing of the liquid cooler, said first structure used to distort the laminar flow of a liquid flowing through a center portion of said hollow tubing and to increase  
20 the surface area within said hollow tubing.

25 19. The method of claim 17, wherein the step of  
introducing a first structure comprises the step of introducing a baffle wire within said hollow tubing of the liquid cooler, said baffle wire having a straight wire region interposed between each two adjacent of a  
30 at least two kink regions, each of said at least two

kink regions having a lobe region abutting said circular inner wall portion, wherein said lobe regions serve to locate said straight wire region along said center portion, wherein said straight wire region 5 distorts the laminar flow of a liquid flowing through said center portion of said hollow tubing.

20. The method of claim 18, wherein the step of introducing a first structure comprises the step of introducing an elongated ridge member to a first 10 location on a circular inner wall portion of said hollow tubing, wherein said elongated ridge member has a pair of end regions secured at said first location and a middle portion extending to said center portion, wherein said first location is in closest proximity 15 with a thermal interface portion of said liquid cooler.

100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1